REMARKS

The application included claims 1, 3-13 and 15-26 prior to entering this amendment. Claims 23-26 are withdrawn.

In this reply, applicant amends claims 1, 5, 6, 8, 17, 19 and 20. Claims 3, 4, 16 and 18 are now canceled. Claims 2 and 14 were canceled previously. No new claims are added. The application remains with claims pending claims 1, 5-13, 15, 17, 19-22 after entering this amendment. The applicants add no new matter and request reconsideration.

Claim Rejections - 35 U.S.C. § 103

The examiner rejected claims 1, 3-13 and 14-22 under Section 103(a) as allegedly unpatentable over Van der Schaar et al. ("Van") in view of Mishra. Applicant respectfully traverses the rejections and requests reconsideration in view of the present amendments and the following remarks.

Transmission is based on a pre-set average target data rate

Regarding claim 1, it is currently amended to recite, in pertinent part:

"selecting a pre-set average target data rate for transmitting video data into the transmission channel;

transmitting the base layer in a single stream to the transmission channel;

recording ~~indicia of~~ bandwidth used by the transmission of the base layer;

~~determining a bandwidth available to the data transmitter based on the recorded indicia of~~ ~~transmitting the base layer;~~

transmitting the enhancement layer only if ~~there is enough bandwidth available to the~~ ~~data transmitter to transmit the enhancement layer~~ an average bandwidth already used by the data transmitter over a last measuring period is below the pre-set average target data rate."

Importantly, the method of claim 1 looks *backward* in terms of the data already sent into the transmission channel , over a last measuring period. The enhancement layer is transmitted *only* if, "the average bandwidth already used by the data transmitter over a last measuring period

is below the pre-set average target data rate." These limitations are not disclosed or suggested in the prior art.

Claim 1 does not depend on network congestion feedback

The examiner acknowledged that Van does not disclose the use of a pre-set average target data rate of transmission into the channel.[1] Neither does Mishra. The "fair bandwidth sharing" scheme of Mishra used feedback control "based upon the detected network load," as correctly observed by the examiner. By contrast, claim 1 describes use of a PRE-SET average target data rate of transmission. In other words, the transmission scheduling according to claim 1 is open-loop, *not* based on feedback from the network as in the prior art. Claim 1 should be allowed.

Claims 3 and 4 are canceled. (Claim 2 was previously canceled.)

Claims 5 and 6 are amended to depend from claim 1.

Claim 7 recites: "The method according to claim 1 wherein the data transmitter has a pre-set maximum transmission rate, and wherein the data transmitter ensures that its rate of transmitting data is below the pre-set maximum transmission rate." Once again, this technique uses a pre-set transmission rate; it too is not based on, and does not require, loading feedback from the network.

Claim 8 depends from claim 1, and it is currently amended to recite:

"transmitting the second enhancement layer only if an average bandwidth already used by the data transmitter over a last measuring period is below the pre-set average target data rate." This again describes an open-loop approach to a well-behaved transmission gating scheme that *does not rely on congestion feedback* as in prior art. For at least the foregoing reasons, claims 1-12 are patentable over the prior art and should now be allowed.

Independent Claim 13 is not amended. In pertinent part, the claim calls for a transmission system having a scheduling operation, "configured to *determine if there is enough bandwidth to send the enhancement layer of data responsive to determining the bandwidth associated with sending the base layer.*" Thus the send/ don't send decision is based on the bandwidth already used (sending the base layer); it is not responsive to feedback from the

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[1] Office action, page 5.

network congestion or loading as taught by Mishra. The examiner precisely pointed out that in Mishra, "the video encoding circuit adjusts the video quality by increasing the video quality when the network load is in the uncongested state and decreasing the video quality when the network load is in the congested state."[2]

Only transmission, not video encoding, is adjusted to meet the pre-set average data rate

In addition, with regard to claim 13, note that Mishra teaches <u>adjusting the video encoding circuit</u> responsive to network loading. Claim 13 does not describe adjusting the video encoding at all. Rather, in claim 13, the coding is already completed ("first data input configured to accept an encoded base layer of data and an enhancement layer of data..."). Claim 13 describes scheduling transmission of that already encoded data (see "a scheduling operation controlling the transmission scheduler"). This is another reason the subject matter is patentable over the cited prior art. For at least these reasons, claim 13 should be allowed.

Claim 14 was previously canceled. Claim 15 depends from claim 13 but is also argued as being independently patentable over the prior art. Claim 15 calls for:

> "The data transmission system according to claim 13, wherein there is
> enough bandwidth to send the enhancement layer *if an average data transmission
> rate of the transmission scheduler is less than a predetermined rate.*"

As observed by the examiner, Van does not disclose using a pre-set (or *predetermined*) data rate for controlling transmission. Mishra, as discussed above, depends on feedback from the network to adjust encoding. Claim 15 compares its *average data transmission rate* to a *predetermined rate*, is does not depend on feedback; and it throttles transmission, not encoding parameters. For these additional reasons claim 15 is independently patentable.

Claim 16 is canceled. Claim 17 is patentable for at least the following two reasons. First, it calls for: "a scheduling operation running on the transmission scheduler ... configured to signal the transmission scheduler to send the at least one enhancement layer into the transmission channel responsive to determining the bandwidth already used by the transmission scheduler sending the base layer." As discussed above, the signal to send the enhancement layer depends

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[2] Office action, page 4, first paragraph.

on (is "responsive to") *the bandwidth already used by the transmission scheduler sending the base layer.*" At least that limitation is not disclosed in the prior art.

Second, claim 17 recites, "wherein the scheduling operation maintains an average target bandwidth <u>outbound into the transmission channel, without regard to a current network load or state of congestion.</u>" This language does not really change the claim but is added for emphasis. For at least these reasons, claim 17 should be allowed.

Claim 18 is canceled. Claim 19 is currently amended to depend from claim 17 and further to recite, "<u>wherein the average bandwidth rate used by the transmission scheduler is determined by recording a number of bytes, and a time period during which those bytes were transmitted, for at least the base layer data transmission.</u>" In Mishra, no such recording of this transmission metadata is necessary because it adjusts video encoding based on network congestion feedback. Accordingly, at least this limitation is not disclosed in the art cited. For this additional reason, claim 19 is independently patentable apart from the base claim.

Claim 20 is amended to depend from claim 17, and it recites, "wherein the scheduling operation is configured to determine there is enough bandwidth available to the transmission scheduler *when an instantaneous bandwidth rate on the transmission channel is below a predetermined rate.*" Once again, contrary to the prior art, the comparison is made to a predetermined bandwidth rate, independent of network loading.

Claims 21 and 22 depend from claim 17 and therefore should be allowed.

Claims 23-26 are withdrawn without prejudice.

Conclusion

For the foregoing reasons, reconsideration and allowance of all of the pending claims 1, 5-13, 15, 17, 19-22 is requested. The Examiner is encouraged to telephone the undersigned at (503) 224-2170 [ext. 204] if any issues remain.

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Respectfully submitted,

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